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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,934	08/30/2002	Minoru Dendou	IP2206001US	2360
28017	7590	07/28/2004	EXAMINER	
RYUKA 1-24-12 SHINJUKU, SIXTH FLOOR TOSHIN BUILDING, SHINJUKU-KU TOKYO, 160-0022 JAPAN			PHAM, TUAN	
			ART UNIT	PAPER NUMBER
			2643	

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/064,934

Applicant(s)

DENDOU, MINORU

Examiner

TUAN A PHAM

Art Unit

2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 August 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11 and 12 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-8 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Mantilo (Pub. No.: US 2003/0026216).

**Regarding claim 1**, Mantilo teaches an xDSL interconnecting device for interconnecting a first analog line and a second analog line (see figure 4), comprising:  
a first analog transmit/receive unit (see figure 3, transmitter/receiver 71), connecting to said first analog line, operable to transmit an analog signal having a first frequency band to said first analog line and to receive an analog signal having a second frequency band higher than said first frequency band from said first analog line (see

figure 2, transmit first frequency band D1, receive second frequency band U1, col.1, [0005], col.2, [0025]). (e.g., It should be noticed that in VDSL system the first transmit frequency band extends from 0.138 to 3.75 MHz, and a second receive frequency band extends from 3.75MHz to 5.2MHz. Therefore, the second frequency band is higher than the first frequency band);

a second analog transmit/receive unit (see figure 3, transmitter/receiver 72), connecting to said second analog line, operable to transmit an analog signal having said second frequency band (see figure 2, second frequency band D2, col.1, [0005], col.2, [0025), to said second analog line and to receive an analog signal having said first frequency band from said second analog line (see figure 2, second frequency band U2, col.1, [0005], col.2, [0025); and

an interconnecting unit, connected to said first analog transmit/receive unit and said second analog transmit/receive unit, operable to interconnect communication between said first analog transmit/receive unit and said second transmit/receive unit (see figure 3, AFE 8, col.3, [0027].

**Regarding claim 2,** Mantilo further teaches An xDSL interconnecting device wherein said first analog transmit/receive unit comprises: a first combine/separate circuit operable to separate a transmitted signal and a received signal that are superposed on said first analog line from each other; a first AD converter operable to convert an analog signal obtained from said first combine/separate circuit to a digital signal to supply said digital signal to said interconnecting unit; and a first DA converter operable to convert a digital signal obtained from said interconnecting unit to an analog signal to supply said

analog signal to said first combine/separate circuit, and wherein said second analog transmit/receive unit includes: a second combine/separate circuit operable to separate a transmitted signal and a received signal that are superposed on said second analog line from each other; a second AD converter operable to convert an analog signal obtained from said second combine/separate circuit to a digital signal to supply said digital signal to said interconnecting unit; and a second DA converter operable to convert a digital signal obtained from said interconnecting unit to an analog signal to supply said analog signal to said second combine/separate circuit (see figure 6, col.2, [0026]).

**Regarding claim 3,** Mantilo further teaches an xDSL interconnecting device wherein a plurality of first analog transmit/receive units and a plurality of second analog transmit/receive units are provided, and said interconnecting unit controls routings between said plurality of first analog transmit/receive units and said plurality of second analog transmit/receive units (see figure 3, AFE 8col.2, [0026-0027]).

**Regarding claim 4,** Mantilo further teaches an xDSL interconnecting device wherein said first analog transmit/receive unit transmits an analog signal having a first partial frequency band of said first frequency band and receives an analog signal having a second partial frequency band of said second frequency band, and said second analog transmit/receive unit transmits data received by said first analog transmit/receive unit in said second partial frequency band, as an analog signal having a third partial frequency band of said second frequency band and receives data to be transmitted by said first analog transmit/receive unit in said first partial frequency band, as an analog

signal having a fourth partial frequency band of said first frequency band (see figure 2, four partials frequency band D1, U1, D2, U2, col.1, [0005], col.2, [0025]).

**Regarding claim 5**, Mantilo further teaches an xDSL interconnecting device wherein said first analog transmit/receive unit and said second analog transmit/receive unit are provided on different circuit boards, respectively (see figure 4, DSL modem 1, 2). It is inherently each modem should be lay out on different circuit board.

**Regarding claim 6**, Mantilo further teaches an xDSL interconnecting device wherein a plurality of first analog transmit/receive units are respectively provided on different circuit boards, a plurality of second analog transmit/receive units are respectively provided on different circuit boards, and said circuit boards where said first analog transmit/receive units are provided and said circuit boards where said second analog transmit/receive units are provided are alternately arranged (see col.2, [0026], and explanation at claim 5).

**Regarding claim 7**, Mantilo further teaches an xDSL interconnecting device further comprising: a power supply operable to supply power to said first analog transmit/receive unit and said second analog transmit/receive unit; and a first noise filter provided between said power supply and said first analog transmit/receive unit (see figure 6, filter 616, col.2, [0013]).

**Regarding claim 8**, Mantilo further teaches an xDSL interconnecting device further comprising a second noise filter provided between said power supply and said second analog transmit/receive unit (see figure 6, filter 616, col.2, [0026]).

**Regarding claim 11**, Mantilo teaches an xDSL interconnecting device further comprising a digital transmit/receive unit (see figure 3, transmitter/receiver 71), connected to a digital line, operable to transmit/receive a digital signal, wherein said interconnecting unit (i.e., AFE) is further connected to said digital transmit/receive unit and interconnects communication between said first analog transmit/receive unit and said digital transmit/receive unit (see figure 3, col.2, [0025]).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mantilo (Pub. No.: US 2003/0026216) in view of Amrany et al. (U.S. Patent No.: 6,067,316, hereinafter, "Amrany").

**Regarding claim 9**, Mantilo teaches an xDSL interconnecting device for interconnecting a first analog line and a second analog line (see figure 4), comprising:  
a first analog transmit/receive unit (see figure 3, transmitter/receiver 71), connecting to said first analog line, operable to transmit an analog signal having a first frequency band to said first analog line and to receive an analog signal having a second frequency band higher than said first frequency band from said first analog line (see figure 2, transmit first frequency band D1, receive second frequency band U1, col.1,

[0005], col.2, [0025]). (e.g., It should be noticed that in VDSL system the first transmit frequency band extends from 0.138 to 3.75 MHz, and a second receive frequency band extends from 3.75MHz to 5.2MHz. Therefore, the second frequency band is higher than the first frequency band);

a second analog transmit/receive unit (see figure 3, transmitter/receiver 72), connecting to said second analog line, operable to transmit an analog signal having said second frequency band (see figure 2, second frequency band D2, col.1, [0005], col.2, [0025), to said second analog line and to receive an analog signal having said first frequency band from said second analog line (see figure 2, second frequency band U2, col.1, [0005], col.2, [0025); and

an interconnecting unit, connected to said first analog transmit/receive unit and said second analog transmit/receive unit, operable to interconnect communication between said first analog transmit/receive unit and said second transmit/receive unit (see figure 3, AFE 8, col.3, [0027]).

It should be noticed that Mantilo fails to clearly teach a low-pass filter, provided on wiring connecting said first analog line and said second analog line, operable to supply an analog signal transmitted through said first analog line to said second analog line after reducing high frequency components thereof and to supply an analog signal transmitted through said second analog line to said first analog line after reducing high frequency components thereof. However, Amrany teaches such feature (see figure 3, POTS filter 60) for a purpose of filtering out high frequency.



Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of a low-pass filter, provided on wiring connecting said first analog line and said second analog line, operable to supply an analog signal transmitted through said first analog line to said second analog line after reducing high frequency components thereof and to supply an analog signal transmitted through said second analog line to said first analog line after reducing high frequency components thereof, as taught by Amrany, into view of Mantilo in order to support both voice and data.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mantilo (Pub. No.: US 2003/0026216) in view of Rippin et al. (U.S. Patent No.: 6,741,604, hereinafter, "Rippin").

**Regarding claim 12,** Mantilo teaches a communication system comprising:

an xDSL interconnecting device operable to receive from a first analog line said analog signal output by said xDSL concentrator to output said analog signal to a second analog line (see figure 3, subscriber line 3 connected to telephone network, which is a central office or concentrator); wherein said xDSL interconnecting device includes:

a first analog transmit/receive unit (see figure 3, transmitter/receiver 71), connecting to said first analog line, operable to transmit an analog signal having a first frequency band to said first analog line and to receive an analog signal having a second frequency band higher than said first frequency band from said first analog line (see figure 2, transmit first frequency band D1, receive second frequency band U1, col.1,

[0005], col.2, [0025]). (e.g., It should be noticed that in VDSL system the first transmit frequency band extends from 0.138 to 3.75 MHz, and a second receive frequency band extends from 3.75MHz to 5.2MHz. Therefore, the second frequency band is higher than the first frequency band);

a second analog transmit/receive unit (see figure 3, transmitter/receiver 72), connecting to said second analog line, operable to transmit an analog signal having said second frequency band (see figure 2, second frequency band D2, col.1, [0005], col.2, [0025), to said second analog line and to receive an analog signal having said first frequency band from said second analog line (see figure 2, second frequency band U2, col.1, [0005], col.2, [0025); and

an interconnecting unit, connected to said first analog transmit/receive unit and said second analog transmit/receive unit, operable to interconnect communication between said first analog transmit/receive unit and said second transmit/receive unit (see figure 3, AFE 8, col.3, [0027].

It should be noticed that Mantilo fails to clearly teach an xDSL concentrator operable to convert a received digital signal to an analog signal to output said analog signal; and an xDSL converter operable to convert said analog signal output by said xDSL interconnecting device to a digital signal to transmit said digital signal to a users terminal. However, Rippin teaches such features (see figure 2, split/switch 27, figure 5, col.8, ln.21-50) for a purpose of separating the low frequency and high frequency.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of an xDSL concentrator operable to

convert a received digital signal to an analog signal to output said analog signal; and an xDSL converter operable to convert said analog signal output by said xDSL interconnecting device to a digital signal to transmit said digital signal to a users terminal, as taught by Rippin, into view of Mantilo in order to support both voice and data.

***Allowable Subject Matter***

6. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In order to expedite the prosecution of this application, the applicants are also requested to consider the following references. Although Sistanizadeh et al. (U.S. Patent No. 6,101,182), McGinn et al. (U.S. Patent No. 6,262,972), Bingham (U.S. Patent No. 6,035,000), and Say (Pub. No. US 2002/0101914) are not applied into this Office Action; they are also called to Applicants attention. They may be used in future Office Action(s). These references are also concerned for supporting the system and method for providing data and voice services on the telephone line by teaching an interface device having XDSL splitter and universal access multimedia data network.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tuan A. Pham** whose telephone number is (703) 305-4987. The examiner can normally be reached on Monday through Friday, 8:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Curtis Kuntz can be reached on (703) 305-4708 and **IF PAPER HAS BEEN MISSED FROM THIS OFFICIAL ACTION PACKAGE, PLEASE CALL Customer Service at (703) 306-0377 FOR THE SUBSTITUTIONS OR COPIES.**

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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Sixth Floor (Receptionist, tel. No. 703-305-4700).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have question on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit 2643  
July 14, 2004  
Examiner

Tuan Pham

  
CURTIS KUNTZ  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600